

**1. General information****Course:** ENGINEERING PROJECTS**Type:** CORE COURSE**Degree:** 412 - UNDERGRADUATE DEGREE PROGRAMME IN ELECTRICAL ENGINEERING**Center:** 106 - SCHOOL OF MINING AND INDUSTRIAL ENGINEERING**Year:** 4**Main language:** English**Use of additional languages:****Web site:****Code:** 56415**ECTS credits:** 6**Academic year:** 2022-23**Group(s):** 55 57**Duration:** First semester**Second language:** Spanish**English Friendly:** N**Bilingual:** N**Lecturer:** DEMETRIO FUENTES FERRERA - Group(s): 55 57

Building/Office	Department	Phone number	Email	Office hours
Edificio Störr Planta 3ª	MECÁNICA ADA. E ING. PROYECTOS	926052115	demetrio.fuentes@uclm.es	It will be published on the bulletin board of the graphic expression area and on the Moodle platform.

**2. Pre-Requisites**

In order for students to achieve the learning objectives described, it is highly recommended that they have passed the subjects of the previous courses that allow them to have an overall idea of the course, especially those in the field of technology and management related to the calculation, design, development and evaluation of an engineering project. It is also advisable to have knowledge of English, office automation and computer-aided design software, at least at a basic level.

**3. Justification in the curriculum, relation to other subjects and to the profession**

This is a discipline and a subject that is different from those taught throughout the degree course; it can be said to be atypical within the group of subjects, but nevertheless very typical within the engineering profession. It is a very formative subject, in which the student has to work in a team, has to dedicate himself to it, and in which he can get a glimpse of what his profession will be like. It is not just a question of the student learning specific jobs that could be carried out during the course; it is a question of learning methods, a way of working, a way of doing things that will allow them to carry out other different specific jobs. It is even intended that they acquire certain qualities, a way of behaving and, why not say it, a temperament that is ideal for working in the world of project engineering.

**4. Degree competences achieved in this course****Course competences**

Code	Description
CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
CEC12	Knowledge and skills to organise and manage projects. Knowledge of the organisational structure and functions of a project office.
CG01	Ability to draft, sign and develop projects in the field of Industrial Engineering, in accordance with the knowledge acquired under the provisions of Order CIN/351/2009, for the construction, reform, repair, conservation, demolition, manufacture, installation, assembly or operation of: structures, mechanical equipment, energy installations, electrical and electronic installations, industrial installations and plants, and manufacturing and automation processes.
CG02	Ability to manage activities related to engineering projects in the field of industrial engineering.
CG04	Ability to solve problems with initiative, decision-making, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of industrial engineering.
CG05	Knowledge required to carry out measurements, calculations, valuations, appraisals, valuations, surveys, studies, reports, work plans and other similar work.
CG06	Ability to handle specifications, regulations and mandatory standards.
CG07	Ability to analyse and assess the social and environmental impact of technical solutions.
CG08	Ability to apply quality principles and methods.
CG09	Organisational and planning skills in the field of companies and other institutions and organisations.
CG10	Capacity to work in a multilingual and multidisciplinary environment.
CG11	Knowledge, understanding and ability to apply the necessary legislation necessary when working as an Industrial technical engineer.
CT02	Knowledge and application of information and communication technology.
CT03	Ability to communicate correctly in both spoken and written form.
CT04	Knowledge of ethical commitment and professional ethics.

**5. Objectives or Learning Outcomes****Course learning outcomes****Description**

Ability to present and defend ideas, problems and solutions in the field of engineering projects.

Ability to manage any type of project.

Understanding and interpreting the importance of current regulations and legislation to be applied in industrial engineering works and their implementation in industrial projects.

Knowledge of the main computer applications used in the preparation, processing and control of projects.

Knowledge of the different tasks to be performed in a project office.

Ability to analyse and compare different alternatives proposed from the economic perspective of a project.

Ability to design, draft and manage all the documents that comprise the structure of an industrial project or any technical document that must be drawn up by this type of professional. Fundamental documents: report, plans, specifications, budget, health and safety documents, environmental documents, control of deadlines and times.

Awareness of the need to adapt engineering projects so that they damage the environment as little as possible.

To know the functions of the work management, its functions and all its responsibilities.

Knowledge of the general aspects of environmental technologies and sustainability.

## 6. Units / Contents

**Unit 1: Introduction to the project**

**Unit 2: Documents. Content and preparation**

**Unit 3: Economic and financial evaluation**

**Unit 4: Project planning, programming and control**

**Unit 5: Legal Processing of Projects**

**Unit 6: Project implementation and management**

**Unit 7: Legislation, quality, safety and environment**

**Unit 8: Human resources and intellectual property**

## 7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	CB02 CB03 CB04 CB05 CEC12 CG01 CG02 CG04 CG05 CG06 CG07 CG08 CG09 CG10 CG11 CT02 CT03 CT04	1.28	32	N		In each session the theoretical contents of the course will be developed.
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	CB02 CB03 CB04 CB05 CEC12 CG01 CG02 CG04 CG05 CG06 CG07 CG08 CG09 CG10 CG11 CT02 CT03 CT04	0.2	5	Y	Y	Different practical cases and problems related to the topics developed in the theoretical sessions will be proposed to be solved in class.
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	CB02 CB03 CB04 CB05 CEC12 CG01 CG02 CG04 CG05 CG06 CG07 CG08 CG09 CG10 CG11 CT02 CT03 CT04	0.6	15	Y	N	They will be developed mainly in the computer classroom where the student will acquire the necessary knowledge of different software related to the elaboration of engineering projects.
Formative Assessment [ON-SITE]	Assessment tests	CB02 CB03 CB04 CB05 CEC12 CG01 CG02 CG04 CG05 CG06 CG07 CG08 CG09 CG10 CG11 CT02 CT03 CT04	0.32	8	Y	Y	The student will take an evaluation test of all or part of the course. It may be long development questions or type test according to the type of test that is defined in each case.
Study and Exam Preparation [OFF-SITE]	Self-study	CB02 CB03 CB04 CB05 CEC12 CG01 CG02 CG04 CG05 CG06 CG07 CG08 CG09 CG10 CG11 CT02 CT03 CT04	3.6	90	N		The student will independently prepare the proposed assignments, study to understand the concepts developed in the practical and theoretical sessions and prepare the different evaluation tests.
<b>Total:</b>			<b>6</b>	<b>150</b>			
<b>Total credits of in-class work: 2.4</b>			<b>Total class time hours: 60</b>				
<b>Total credits of out of class work: 3.6</b>			<b>Total hours of out of class work: 90</b>				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

## 8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Final test	20.00%	40.00%	Answers to theoretical questions on topics developed in class and resolution of practical exercises.
Projects	30.00%	30.00%	Group work to be presented and defended
Assessment of problem solving and/or case studies	15.00%	15.00%	Presentation for review of exercises performed in class or proposed, similar
Assessment of activities done in the computer labs	15.00%	15.00%	Resolution of cases with the use of specific software
Progress Tests	20.00%	0.00%	Voluntary tests for monitoring achievement throughout the course
<b>Total:</b>	<b>100.00%</b>	<b>100.00%</b>	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

**Evaluation criteria for the final exam:**

**Continuous assessment:**

Delivery of all activities is required.

**Non-continuous evaluation:**

Delivery of all activities is required.

**Specifications for the resit/retake exam:**

The same applies as for non-continuous evaluation.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	32
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	5
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	15
Formative Assessment [PRESENCIAL][Assessment tests]	8
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Global activity	
Activities	hours
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	5
Class Attendance (theory) [PRESENCIAL][Lectures]	32
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	15
Formative Assessment [PRESENCIAL][Assessment tests]	8
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
<b>Total horas: 150</b>	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Contreras Sanz, Javier	Proyectos : PRO-002 /	Universidad de Castilla-La Mancha, Escuela Técnica		978-84-608-0640-0	2007	
González Marcos et al	Ingeniería de Proyectos	Dextra	Madrid	9788416277018	2014	
Cos Castillo, Manuel de	Teoría general del proyecto /	Síntesis,		978-84-7738-452-6 (o	2007	
Machado Bueno, Aída.	Manual imprescindible de Presto 2016 /	Anaya Multimedia,		978-84-415-3729-3	2015	
Lewis, Cindy	Microsoft project 2019 : step by step /	Pearson Education, Inc.,		1-5093-0742-7	2019	